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PATENT SPECIFICATION

DRAWINGS ATTACHED

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COMPLETE SPECIFICATION

Improvements in Window or Windscreen Wiper Mechanism

We, WYNN DEVELOPMENTS LIMITED, a British Company, of Alma House, Rodney Road, Cheltenham, in the County of Gloucester, do hereby declare the invention for which we pray that a patent may be granted to us, and the method by which it is to be performed, to be particularly described in and by the following statement:—

- 10 This invention relates to window or windscreen wiper mechanism of the pantograph type and of the kind including a pair of comparatively short levers pivotally mounted in parallel relationship in a fixed support, the two levers being connected at their free ends by a short link and a pair of comparatively long parallel arms pivotally connected with the free ends of the levers at their points of connection with the link, the two arms at their free ends being connected by a second link which usually carries the wiper blade.

- The chief object of the present invention is to evolve improved means for drivably connecting the levers and arms together whereby the windscreen wiper blade will be caused to follow a straight line or substantially straight line path of movement across the surface of the window or windscreen, as a result of the levers having a pivotal movement imparted to them by means for example of a connecting rod and motor driven crank or other suitable operating mechanism connected directly or indirectly with one of the two levers which in turn is connected with one of the two comparatively long arms.

- Window or windscreen wiper mechanism of the pantograph type as hereinbefore defined is characterised according to the present invention in that one of the two levers is pivotally driven and is drivably connected with the arm at its free end by

a gear train which will control the path of movement of the wiper blade so that its path of movement is straight or substantially straight, said gear train comprising a fixed gear wheel carried by a mounting plate, casing or other support, a rotatable gear wheel in driving connection with said arm at the free end of the driven lever and an intermediate gear wheel meshing with the fixed gear wheel and rotatable gear wheel, the rotatable gear wheel and intermediate gear wheel being carried by the driven lever.

It will be appreciated that the actual elimination of the curvature of blade movement will depend on the length of sweep of the blade, the gear train tending to flatten out the path of movement so that its curvature is virtually eliminated for all practical purposes in the case of wiper mechanism in which the effective lengths of the levers and arms and gear ratio are correctly co-ordinated.

It is preferred to use a gear train comprising a fixed gear wheel or its equivalent mounted co-axially with the hinge axis of the driven lever, a larger diameter gear wheel meshing with the fixed gear wheel and revolvable about an axis on the driven lever, and a third gear wheel preferably of still smaller diameter meshing with the intermediate gear wheel and in driving connection with the driven arm.

It will be appreciated that in operation, the intermediate gear wheel, as a result of pivotal movement of the lever will have a part rotational movement imparted to it due to its driven connection with the fixed gear wheel and will in turn impart a part rotational movement to the third gear wheel, the pivotal movement of the driven arm being thereby controlled.

The degree of curvature of the stroke axis

of the wiper blade will be dependent upon the ratio of the length of the levers to the length of the arms and/or gear ratio.

Referring to the accompanying drawings.

5 Figure 1 is a front elevation diagrammatically illustrating the preferred form of windscreen wiper mechanism in accordance with the present invention.

10 Figures 2 and 3 are respectively a front elevation and section of the main component parts of the driving mechanism.

To enable the invention to be more clearly understood only the main components are illustrated but it will be appreciated that the gear train will in practice be enclosed in a waterproof housing which itself constitutes one of the two parallel short levers of the wiper mechanism as hereinafter described.

20 The wiper mechanism comprises two comparatively short levers 1 and 2, connected together at their upper ends by a link 3, lever 1 constituting the aforesaid housing and occupying a vertical position when the wiper blade 4 (see Figure 1) is in its central or substantially central position in its path of movement. As will be seen from Figure 1 the path of movement of the blade 4 is substantially straight throughout its sweep over the window or windscreen, the blade at all times assuming a vertical or near vertical position, levers 1 and 2 having an arcuate pivotal movement as depicted by arrows "A" in Figure 2.

35 Lever 1 is secured at its lower end to one end of a short spindle 5 passing through a bearing 6 in a suitable mounting plate or other support 7, the spindle at its opposite end being secured to a lever 8 which has a pivotal movement imparted to it by an electric motor (not shown).

40 A fixed gear wheel 9 is secured by means of a screw 10 to mounting plate 7, gear wheel 9 meshing with an intermediate gear wheel 11 carried by a spindle 12 revolvable in a bearing 13 in lever 1.

50 A third gear wheel 14 of smaller diameter than gear wheels 9 and 11 meshes with intermediate gear wheel 11, gear wheel 14 being fixed to spindle 15 revolvable in a bearing 16 in lever 1. Spindle 15 is cross-pinned as at 17 to long arm 18 of a pair of parallel arms 18 and 19 connected at their lower ends by a link 20 carrying the wiper blade 4 (see Figure 1).

55 Lever 2 and arm 19 and link 3 are pivotally connected by a pin 21 whilst lever 2 is pivotally mounted on the mounting plate or other support 7 by a pin 22.

60 It will be appreciated therefore that

pivotal movement of lever 8 by the electric motor will cause intermediate gear wheel 11 and lever 1 to move in an arc around the centre of fixed gear wheel 9, at the same time revolving gear wheel 14 to impart 65 movement to blade carrying arms 18 and 19 to cause the wiper blade 4 to traverse the window or windscreen in a substantially straight line.

70 Gear wheel 14 will generally be of smaller diameter than fixed gear wheel 9 but intermediate gear wheel 11 may have a diameter less than fixed gear wheel 9 and still provide a substantially straight path of movement of the wiper blade. 75

Preferably arms 18 and 19 depend downwards, the gear train containing housing and driving electric motor being arranged about the upper edge of the window or windscreen. With such an arrangement it is 80 thought that the mechanism will cause less obstruction to vision when in the parked position than the conventional type of pantograph wiper mechanism.

WHAT WE CLAIM IS:—

85 1. Window or windscreen wiper mechanism of the pantograph type as hereinbefore defined wherein one of the two levers is pivotally driven and is drivably connected with the arm at its free end by a gear train 90 which will control the path of movement of the wiper blade so that its path of movement is straight or substantially straight, said gear train comprising a fixed gear wheel carried by a mounting plate, casing 95 or other support, a rotatable gear wheel in driving connection with the said arm at the free end of the driven lever and an intermediate gear wheel meshing with the fixed gear wheel and rotatable gear wheel, the rotatable gear wheel and intermediate gear wheel being carried by the driven lever.

2. Window or windscreen wiper mechanism as claimed in claim 1, wherein the rotatable gear wheel, in driving connection 105 with the arm is of smaller diameter than the fixed gear wheel.

3. Window or windscreen wiper mechanism of the pantograph type as hereinbefore 110 defined, constructed, arranged and adapted to operate substantially as and in the manner hereinbefore described with reference to the accompanying drawings.

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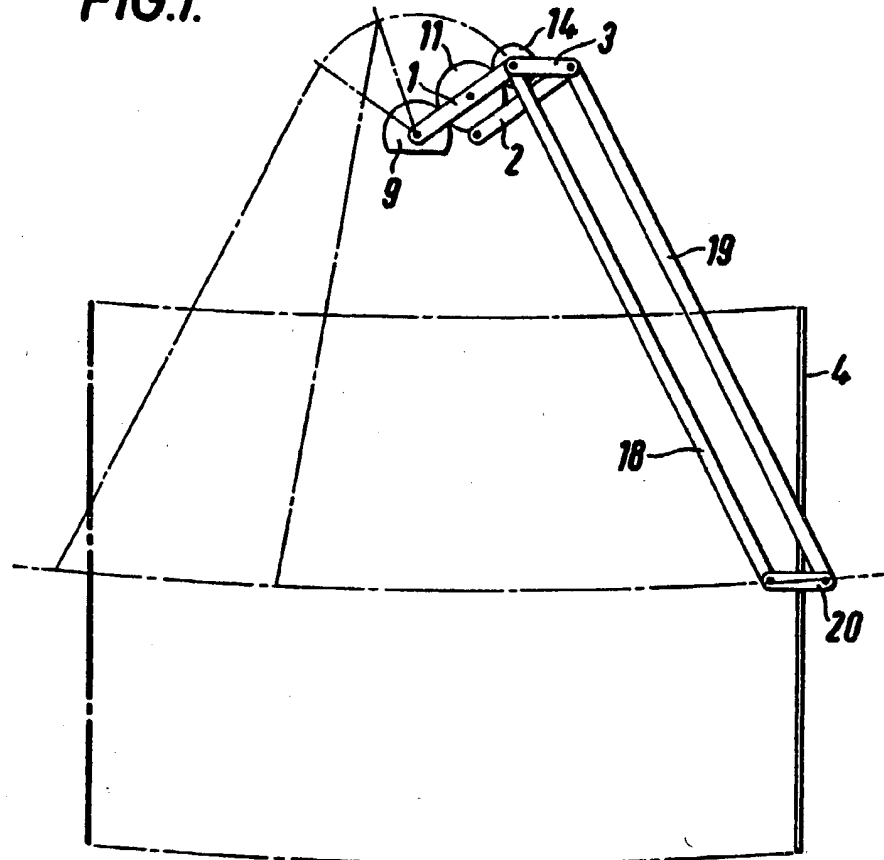
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2 SHEETS

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SHEET 1

FIG.1.



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SHEET 2

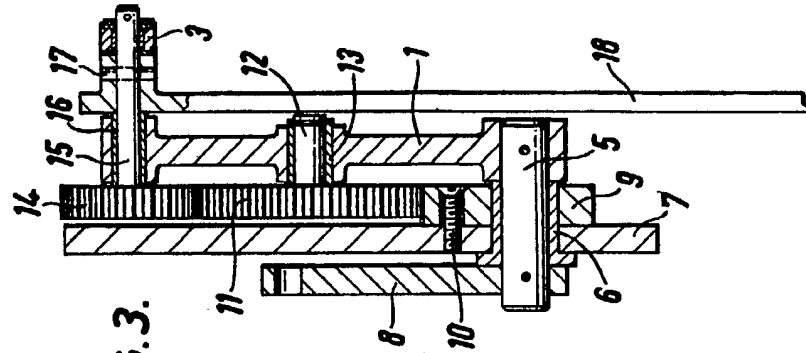


FIG. 3.

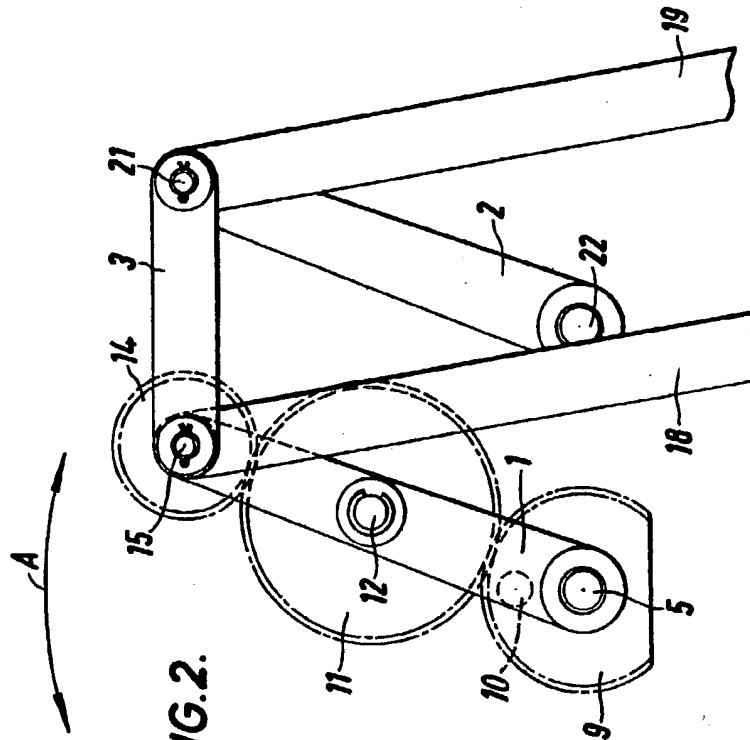


FIG. 2.